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NAVY RESPONSES TO AGENCY COMMENTS

ON

DRAFT FINAL ECOLOGICAL RISK ASSESSMENT WORK PLAN
NAVAL STATION, TREASURE ISLAND
HUNTERS POINT ANNEX
SAN FRANCISCO, CALIFORNIA

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DRAFT FINAL ECOLOGICAL RISK ASSESSMENT (ERA) WORK PLAN (WP)

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NAVY RESPONSES TO EPA, DTSC, AND RWQCB COMMENTS

The following are the Navy's responses to the comments of the United States Environmental Protection Agency, Region IX (EPA), State of California Environmental Protection Agency, Department of Toxic Substances Control, Region 2 (DTSC), and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), on the *Draft Final Ecological Risk Assessment Work Plan, Naval Station, Treasure Island, Hunters Point Annex, San Francisco, California.* The EPA and DTSC comments were transmitted in separate letters dated October 5, 1992. RWQCB comments were transmitted in a letter dated October 7, 1992. Comments from the United States Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) were not received. Agency comments are reproduced here exactly as in the original documents.

EPA COMMENTS AND NAVY RESPONSES

General Comments: **This draft final ecological risk assessment workplan addresses most of the concerns raised in the comments of 23 June 1992, as well as those discussed at the technical meeting on 12 August 1992. The workplan represents an excellent example of a phased approach to a hazardous waste site ecological assessment. The Navy and its contractors are commended for the high level of cooperation with the various regulatory agencies in developing a technically acceptable approach.**

Because of the potential for this investigation to generate large amounts of data, it is important that the collection of data be consistent with EPA's Locational Data Policy. The policy states "[that]:

- **All Agency-sponsored data collections and activities that define/describe attributes (environmental characteristics) about a place are within the scope of the LDP.**
- **As an established Agency-wide goal for new data, coordinate points are to be accurate to within 25 meters.**
- **The LDP establishes a technology-based standard (i.e., lat/long coordinates should be obtained from the best practicable geocoding technology)."**

Due to its potential for yielding consistent, highly accurate measurements, the Agency currently considers Global Positioning Systems (GPS) to be the best practicable technology."

While Federal Facility RI/FS activities may be exempt from this policy (since they could be considered not to be actually sponsored by EPA--the applicability of this policy to Federal Facility Superfund sites has not yet been determined), the policy is based on sound data management and should be considered when developing and implementing any field investigation. It is therefore recommended that all samples be geocoded with spatial information at an appropriate scale and with necessary meta data for use in a GIS. For additional information on this policy, see Locational Data Policy Implementation Guidance (220 B-92-008, March 1992) by U.S. EPA Administration and Resources Management (PM-211D):

- **Guide to the policy**
- **Guide to Selecting Latitude/Longitude Collection Methods**

Response: We acknowledge and agree with this comment. All field samples will be geocoded as indicated above.

Specific Comments:

2.2.3.5 Evaluation of Essential Nutrient Status of Inorganic Chemicals

The workplan refers to the EPA (1989b) recommendation that "chemicals that are essential nutrients, present at low concentrations, and toxic only at very high doses need not be considered in human health risk assessments." Contrary to what is stated in the workplan, this in not valid for non-human receptors. As previously stated in the comments of 23 June 1992:

> **"Contrary to what is appropriate for human health, less than toxic concentrations of essential nutrients in aquatic environments may represent a significant ecological concern. The community/trophic structure of entire ecosystems has been altered by sub-lethal changes in the levels of essential nutrients due to competitive advantages of certain species to utilize the addition of limiting nutrients, e.g., Chesapeake Bay. These types of effects can best be evaluated through population studies." (page 3 of memorandum)**

There is a large body of literature supporting these phenomena. EPA will be happy to supply appropriate references if requested.

The Agency strongly recommends that the Navy and its contractors seriously investigate the relative contribution of allochthonous sources of essential nutrients from the Hunters Point Superfund Site, as well as their potential impacts to the San Francisco Bay ecosystem.

Response: This comment is acknowledged. Essential nutrients status will not be used as a criterion for selecting chemicals of concern at this time. The text has been revised accordingly. Ongoing Navy investigations at Hunters Point are expected to provide information on both allochthonous and anthropogenic sources of chemicals.

2.3.3.3 Aquatic Survey of Facility

As part of the reconnaissance field activities, the workplan proposes an aquatic survey including intertidal areas, offshore benthic communities, epibenthic communities, and fish trawl transects. While these activities are certainly welcome, they actually exceed the expectations of the Agency for a Phase I Ecological Assessment. EPA supports these investigations, however, recommends that in addition to collecting samples for evaluating only biotic species, both standard water and sediment quality parameters be also evaluated at each sampling location. These parameters include:

- **Oxygen concentration**
- **pH**
- **Salinity**
- **Temperature**
- **Sechi depth and/or turbidity (water only)**
- **Depth**
- **Total organic carbon**
- **Total suspended solids**
- **Total dissolved solids**
- **Chlorophyll a**
- **Nitrogen as ammonia, nitrite, nitrate, and Kjedahl (or total)**
- **Phosphorus**
- **COD and BOD**

These, as well as other appropriate parameters that may be recommended, will assist in evaluating biotic data and in siting future sampling locations.

Response: We acknowledge and agree with this comment. While these standard parameters were planned to be collected as part of the aquatic survey, they were not explicitly stated in the work plan. As stated on pages 20 and 23 of the Draft Final Work Plan, the

purpose of these surveys is to identify aquatic species in the vicinity of HPA. The intent of collecting and preserving specimens is to allow for their use in later phases, if needed.

DTSC COMMENTS AND NAVY RESPONSES

General Comments: **The work plan outlines a tiered study which will employ a hazard quotient approach, similar to that used in a human health risk assessment, to evaluate the non-carcinogenic risk to aquatic and terrestrial non-human receptors.**

The responses to previous comments by the Human and Ecological Risk Section (HERS) are adequate where the points are specifically addressed. There remain several points of comment, for which the responses are delayed until completion of what is now phase 1A and 1B of the ecological risk assessment. These unresolved points of comment are:

1. **DTSC requirement that total concentration of contaminants be used to evaluated the total risk with additional calculations developed to evaluate navy-related contamination.**

2. **Use of the "background" soil and groundwater report data in the risk assessment either as "background" or "interim ambient concentrations".**

3. **Selection of a "manageable number" of indicator species.**

4. **Consideration of the "fraction of fish consumed" in the risk assessment.**

5. **The magnitude of a hazard quotient which is indicative of potential adverse effects.**

Response: These points are acknowledged, and will be addressed in the future as appropriate.

Specific Comments: **The meaning of the second decision point (Plate 3) must be clarified given the statement that "...no further action is recommended." For those locations where negative results are obtained for any of the first three decision points (Section 2.2, page 6). This second decision point asks whether "sensitive biota/habitats" are present. Species which are officially listed as rare, threatened or endangered are frequently referred to as "sensitive species." The HERS interprets this decision point as a test of whether there are <u>any</u> ecological receptors present at the location.**

Response: The HERS concerns are noted. While in theory this decision point can be interpreted to mean the presence of <u>any</u> ecological receptors, in practice this involves some professional judgement.

For example, if a terrestrial area is paved but has some opportunistic plants growing through the cracks in the pavement, this is not likely to be an area requiring additional evaluation. The second decision point on Plate 3 is designed to be interpreted in this manner.

Comment: **Three "major objectives" of the ESAP are referred to (Section 2.2.3.2, page 12) while only two are listed (Section 2.2.3.2, page 13).**

Response: This comment is acknowledged. The text on page 12 should state that there are two major objectives of the ESAP.

Comment: **There appears to be some discrepancy between the bioassays described in the ESAP and the Addendum to the ESAP (January 29, 1992) and the ESAP bioassays referred to in this Ecological Risk Assessment (ERA) Work Plan (Section 2.2.3.2, page 13). The ERA work plan states that ESAP bioassay species were amphipods, oyster larvae and sand dabs. The Addendum to the ESAP states (Response to DTSC comments #3, page 2) that sediment bioassays will be performed on an amphipod, modified sediment bioassays will be performed on a mysid shrimp and a polychaete worm, and liquid-phase bioassays will be performed on a mysid shrimp, a bivalve and the sand dab. The mysid shrimp and polychaete worm bioassays should be added to the listing of ESAP bioassays in the ERA work plan.**

Response: This comment is acknowledged. The text has been revised as suggested.

Comment: **Quantitative data on half-life in soil, sediment and water is extremely variable and may be useful only as a semi-quantitative measure of persistence such as classification of contaminants into highly persistent, moderately persistent and transitory groups (Section 2.2.3.3, page 15).**

Response: We agree with this comment, and plan to use these data in a semi-quantitative manner for classifying chemicals into such groups.

Comment: **Scheduling receptor census visits to "...assure fair weather." may exclude potential receptors such as salamanders or frogs and toads which may be more active during periods of inclement weather.**

Response: We acknowledge and agree with this comment. It is recognized that conducting a census in fair weather may undercount some animals such as salamanders, but this is not expected to be significant. Conducting the census in fair weather should result in the most comprehensive species list possible given a one-time survey.

Comment: **The statement that "...year-round residents are expected to be more exposed to chemicals at HPA than seasonal visitors." (Section 2.3.3.2, page 20) is true only if exposure pathways media concentrations and exposure frequencies are identical. Given the emphasis of the ERA on the ingestion route of exposure, over-wintering birds which consume the bulk of their diet from the area of HPA could be exposed to a greater dose than resident birds with differing diets or a larger foraging area.**

Response: This comment is acknowledged. Overwintering birds will be considered, as appropriate, in our selection of indicator species for further evaluation.

Comment: **Preservation of sediment samples by freezing (Section 2.3.3.3, page 22) may be appropriate for some contaminants but not for others. The appropriateness preservation by freezing must be evaluated after selection of the chemicals of concern.**

Response: This comment is acknowledged. However, samples must be obtained prior to selection of chemicals of concern. Sample preservation will be done to ensure adequate preservation of all potential classes of chemicals present in the sampled media.

Comment: **The HERS <u>strongly recommends</u> that additional fish sampling be performed as part of phase 1B (Section 2.7.1, page 42).**

Response: This comment is acknowledged. As stated on page 42 of the Draft Final Work Plan it is expected that additional fish sampling will be necessary as part of the Phase 1B activities.

RWQCB COMMENTS AND NAVY RESPONSES

General Comment: **This workplan presents a strong and defensible conceptual plan for developing a site-wide environmental risk assessment. We support the proposed phased approach to the assessment.**

The proposed reconnaissance surveys, in which biological data are to be collected, should also include the collection of conventional soil and sediment parameters including pH, grain size, temperature, total organic carbon, and (pore water) salinity or conductivity (as appropriate). These conventional parameters will assist in relating the survey data to previous sampling episodes in which chemical, conventional and/or biological parameters were measured.

Response: This comment is acknowledged. The text has been revised accordingly.

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2.2.3 Methodology and Rationale

2.2.3.1 Analytical Data Compilation

Data collection at the IR and PA sites at HPA is in progress and will continue during the ERA. The status of the data as to extent and validation will vary by site. The data available upon initiation of the ERA will be compiled as part of Phase 1A; additional data collected following this start date will be considered in subsequent phases of work.

The data for each site will be reviewed and sorted as to the media sampled, number of samples collected, analytical methods used, detection limits achieved, analytes detected, frequency of detection, and the minimum, maximum, and mean concentrations of the chemicals detected at least once in at least one medium. Table 2 provides the type of statistical data to be compiled for each medium and site, using groundwater data at Site IR-8 as an example.

It is expected that analytical data on surface and subsurface soils, bay sediments, groundwater, surface water, stormwater and sewer sediments, and air will be available from the current and planned site-specific and facility-wide investigations. Table 3 indicates the current availability of data for the IR and PA sites for each of these media. In addition to the available data outlined on Table 3, available data from the ESAP or other facility-wide studies will also be reviewed, as discussed below.

2.2.3.2 ESAP Data Compilation

The objective of the ESAP is to provide data to address selected aquatic habitat concerns at HPA. The ESAP focuses on the potential effects associated with the chemicals in the aquatic environment adjacent to the HPA facilities. The two major objectives of the ESAP are to:

- Evaluate the chemical and physical characteristics, and the toxicity of sediments to appropriate test organisms.
- Evaluate whether persistent and bioaccumulative substances may be present in or entering San Francisco Bay using transplanted mussels as a biological indicator.

The design of the studies to meet these objectives is briefly outlined below.

The evaluation of sediment toxicity task is designed to evaluate the potential toxicity of chemicals in the surficial bay sediments found in nearshore habitats adjacent to HPA. Contamination of sediments in San Francisco Bay is of primary concern because chemicals in these surficial sediments have the greatest potential for toxicity and bioaccumulation in benthic organisms. The sampling design developed in this task included the following:

- Seventeen stations were located offshore of HPA.
- Reference stations were selected from San Pablo Bay.
- Ten grab samples of surficial sediments were collected from each of the test stations.
- Bioassays were conducted on the composite sediment samples using two phases (liquid suspended particulate phase and solid phase).
- Bioassay test species were amphipods (*Eohaustarius estuaruis*), oyster larvae (*Crassostrea gigas*), mysid shrimp (*Holmesiysis costata*), polychaetes (*Nephtys caecoides*), and the sand dab (*Citharichthys stigmaes*).
- Chemical confirmation analyses were conducted on composite sediment samples from each station.

The bioaccumulation potential of chemicals in San Francisco Bay near HPA into aquatic organisms was evaluated by measuring the chemical uptake into the mussel, *Mytilus californianus*. Two sampling periods were selected, one under wet weather conditions and the other during dry weather. The sampling design and protocols developed for this task include the following:

interim ambient concentrations will be restricted to inorganic chemicals as recommended by the EPA (*1989b*) because their occurrence is widespread compared to the majority of detected organic compounds, whose occurrence is generally believed to be related to anthropogenic activities.

2.2.4 Application of Results

These baseline data will be used to identify information needed to estimate exposures of ecological receptors. Although the available chemical data from the aquatic environment may be obtained from within HPA property boundaries, it does not necessarily follow that the chemical concentrations are due solely to HPA activities, due to the complex nature of the bay dynamics and other chemical discharges to the bay from both mobile and stationary sources. The dataset used to estimate the exposures of both terrestrial and aquatic receptors is most appropriately considered conservative because data on chemicals not originating at HPA or not due to Navy activities may be included. The results of the data evaluation will be used to focus the further work needed to quantify the exposures of ecological receptors.

As previously discussed, the data from the ESAP will be evaluated for preliminary assessment of potential impacts to the aquatic ecosystem from chemicals in the bay waters. These data can be applied in the following ways to assist in the Phase 1A portion of the ERA:

- The sediment chemical and bioassay data will be used to evaluate potential toxicity of the sediment. If toxicity is found at various stations, these will be used in conceptual modeling to aid in the design of the reconnaissance field effort (see Section 2.3). Stations that indicate toxicity and/or contain chemicals will be sampled during the reconnaissance field surveys.
- The bioaccumulation studies employing mussels will be used to evaluate regional effects of chemicals. If sufficient data are collected, the

information may be used to design uptake modeling in Phase 1B or Phase 2.

- Stormwater chemical and bioassay data will be used to evaluate potential toxicity of chemicals leaving the site. In addition, these data may be used in locating nearshore intertidal sampling stations as discussed in Section 2.3.

The chemical fate and transport information discussed above for organic chemicals will be used as a criterion to select chemicals of concern for the ERA in Phase 1B. The fate and transport information compiled in this task will also be used to help identify exposure pathways and to quantify receptor exposure-point concentrations in subsequent phases. Presence of inorganic chemicals above interim ambient levels will be used as one criterion in selecting inorganic chemicals of concern for the ERA in Phase 1B.

sediment stations and stormwater bioassays collected during the ESAP program will be reviewed to help select sampling stations (*ATT, 1991*). Review of published offshore and intertidal studies conducted in the area surrounding the HPA facility and similar areas around the bay will also be conducted to assist in station (and possible reference area) selection.

The final selection of stations will be based on reviews of the ESAP and literature data as outlined above. Reference areas for intertidal, benthic, and fish trawl transects that are similar in physical and biological characteristics to those found at HPA will be selected. Identification of control sites that are unaffected by anthropogenic activities are very difficult to find in San Francisco Bay. If there are gradations of chemical concentrations moving offshore from HPA, it may be possible to select sites that have similar characteristics and are less impacted than nearshore sites. If this is not possible, an attempt will be made to locate possible sites some distance from HPA facilities, based upon literature and knowledge of the bay habitats. Sampling designs for each habitat surveyed will be based upon statistically sound methodologies.

The following aquatic surveys are planned as part of reconnaissance field activities:

- Intertidal areas adjacent to the HPA facility
- Benthic communities offshore of the facility
- Epibenthic communities adjacent to benthic stations and/or fish trawl transects
- Fish trawls along 5 to 8 transect lines near selected benthic communities.

Field activities for surveying these aquatic communities will require ship board sampling and laboratory sorting and identification of invertebrates. At each sampling location, conventional sediment and water parameters will also be compiled and